APPENDIX B

Standard Operating Procedures

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Pacific Region (Laguna Niguel)

E X P L O S I V E S H A N D L I N G

INDEX

ARMY SERVICE FORCES
Los Angeles Port of Embarkation
Wilmington, California

October 1945

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* INTRODUCTION

1. This pamphlet illustrates the role played by the Los Angeles Port of Embarkation in shipping ammunition and explosives overseas. It portrays photographically the safety precautions which reduce explosive handling risks to the absolute minimum.

2. In general, the supply of explosives and ammunition was based upon Army Service Forces directives establishing the per day per weapon allowances from which were derived the Theater ammunition levels of supply on a 180 day basis. These authorized allowances varied from 0.2 rounds for .45 revolvers to 70 rounds for .30 machine guns. The primary procurement difference--that control of general cargos was delegated to the Port of Embarkation, while ammunition was controlled and allocated by the Army Service and Air Forces--is apparent by consideration of the methods of maintaining proper supply levels of general cargo and ammunition by procurement and shipment of materiel.

a. Procurement of general cargo.

To procure general cargo, the appropriate Port Technical Service processed the Theater requisitions, established the shipping period and, except for controlled items, prepared extract requisitions upon the proper depots.

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b. Procurement of ammunition.

To procure ammunition, the Theater prepared a monthly Ammunition Radio from which Explosives Control Section of the Port Ordnance Office prepared the Ammunition Supply Report to show approved levels of supply and ammunition both "on hand" and "afloat" enroute to the Theater. The various sections of this report were forwarded to the Office, Chief of Ordnance or the Commanding General, Army Air Forces. The Office, Chief of Ordnance, edited the report and sent it to Stock Control, Army Service Forces, for approval or disapproval. Reports from the latter office and Commanding General, AAF, were returned to the Office, Chief of Ordnance, who determined the availability of ammunition, shipper and other pertinent data.

3. The manner of ordering cargos to the Port illustrates further distinctions between the two types of materiel. Receipt of general cargo was controlled to maintain Port operating fluidity, reduce diversion of cargo enroute to holding points and unnecessary Port handling; however, two factors governed the release of explosives and ammunition to the Port: obtaining of components of supply required to load planned shipments; and the holding of minimum amounts of explosives in the Port area and Rialto Ammunition Back-Up Storage Point.

a. Ordering general cargo to Port.

(1) Only the cargo for phase shipment to Port, released by PTO to OCT, was issued ODT permits.

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(2) LCL rail shipments under 20,000 pounds and truck shipments less than 10,000 pounds for released phase pericd could be shipped without CDT permits.

(3) 20,000 pounds and under 10 cars of cargo were issued blanket CDT permit for shipment during proper period.

b. Ordering explcsives to Port.

(1) The explosive safety policy provided that only 12 hours loading requirements or 50 cars of explosives, whichever was less, would be in the Port area or on Victory Pier at any time.

(2) Upon PTD order, explosives were routed thru to the Rialto Ammunitien Back-Up Storage Point to reach that location prior to vessel loading.

(3) Under usual supply circumstances only that quantity of explosives for which shipping space was available were permitted at Rialto.

(4) Explosives were brought to Victory Pier after the completion of all preparations for vessel loading.

4. To standardize ammunition handling operations and insure safe practices, a Standing Operating Procedure was established. Amend-

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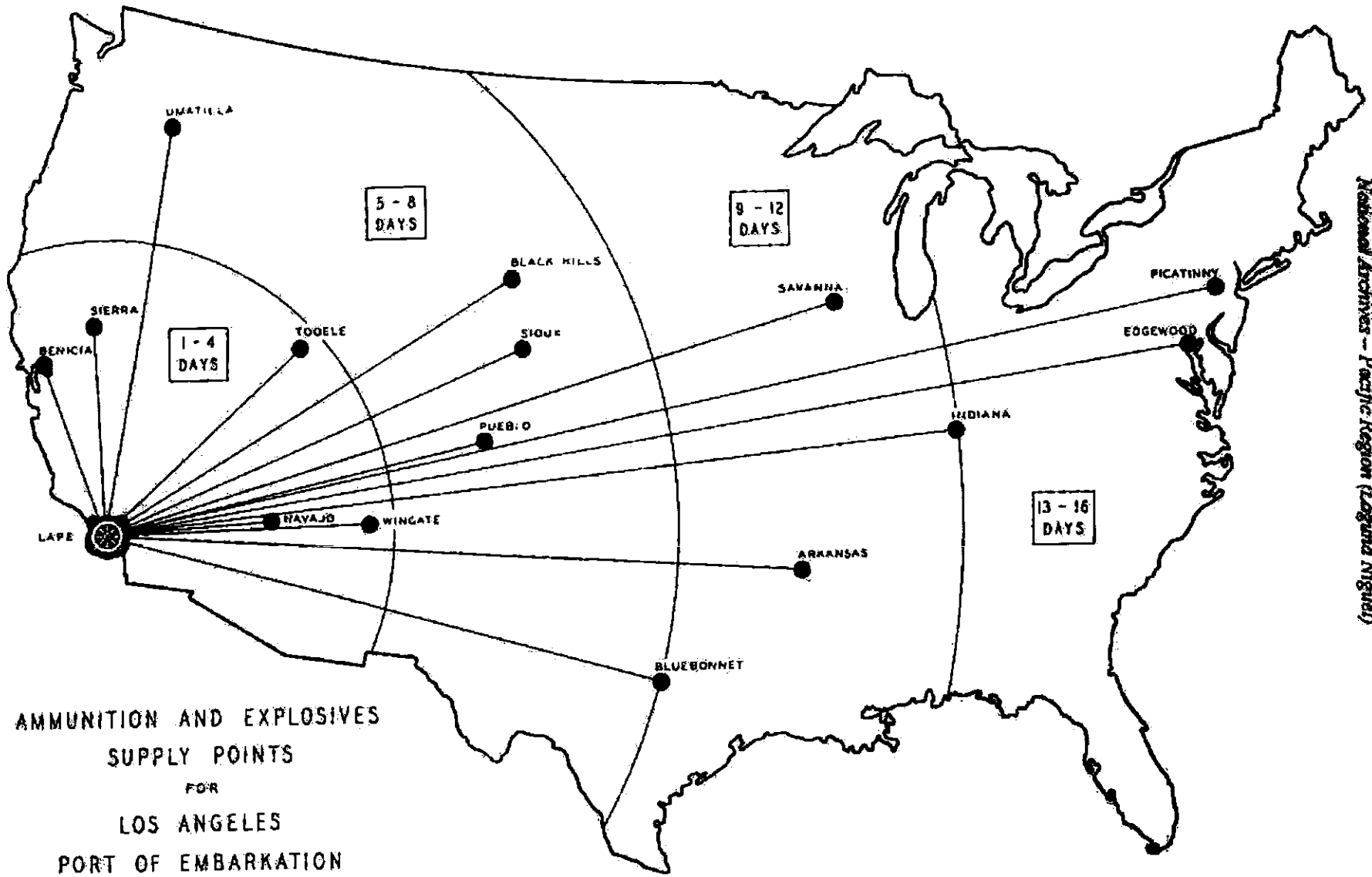
ments were made as experience indicated and the final issue of the Standing Operating Procedure is inclosed herein as Exhibit "Section CA", immediately following the photographic exhibit. The value of safety precautions is clearly indicated by the record achieved at LAPE of receiving and shipping 100,227 long tons of ammunition and explosives during 1943, 130,721 long tons during 1944 and 89,882 long tons through September of 1945 without a single explosion or fire incident.



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RIALTO AMMUNITION BACK-UP STORAGE POINT

The Rialto Ammunition Back-Up Storage Point permitted use of additional safety measures and facilitated expeditious handling of ammunition and explosive cargos in the Port area. All ammunition and explosives shipped by LAPE were routed through Rialto except in case of military necessity.

Rialto, 77 rail miles from the Port area, performed several services relative to ammunition and explosives handling:

a. Temporary storage until Port called cargo to Victory Pier to load designated vessels.

b. Segregation of cargos in accordance with loading requirements.

c. Combination of LCL shipments into carload lots.

d. Control of cargos to facilitate arrival in Port at specified time.

e. Inspection of ammunition and dunnage immediately prior to entrance to Harbor.

Characteristic operations at Rialto and Victory Pier relative to the safe-handling of ammunition are illustrated in pictorial sequence following:

National Archives and Records Administration
Pacific Region (Laguna Niguel)

Record Group: Records of the Office of the Chief of Transportation, RG 336

Agency or Division: Port of Embarkation, Los Angeles

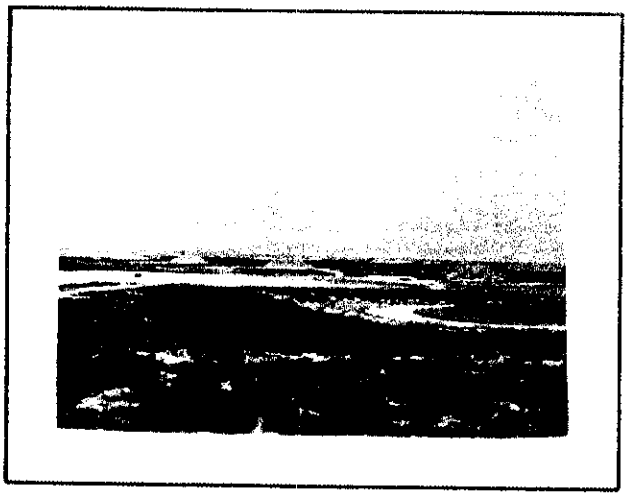
Series: Central Subject Files, 1941-1946

Folder Title: 471 Ammunition Handling (photographs) 1944

Box Number: 14

AMMUNITION STORAGE RESERVATION

Ammunition forwarded to the Port is routed through Rialto Ammunition Back-Up Storage Point, unless military necessity requires direct shipment to the LAFE Ammunition loading point, Victory Pier. The photograph illustrates the belt of land 1800 feet wide around the working area which provides security against the entrance of unauthorized personnel, careless use of small arms, fires, and other explosive hazards. Visible in the picture are igloos and loaded rail cars spaced in compliance with distance regulations for storage of explosives. Additional igloos and rail facilities under construction will increase the ammunition storage capacity of this installation.



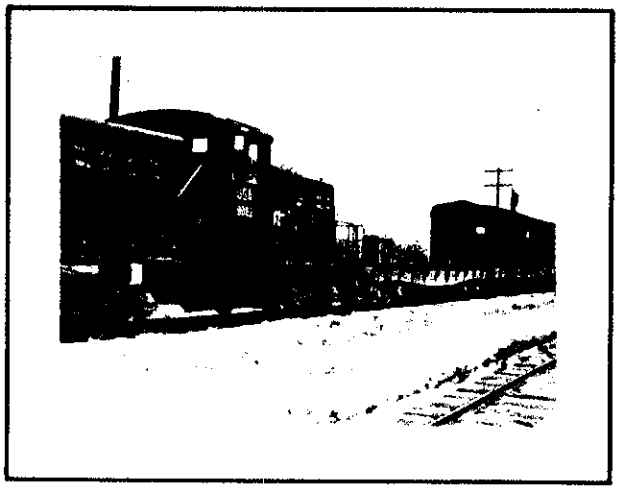
GUARD TOWER

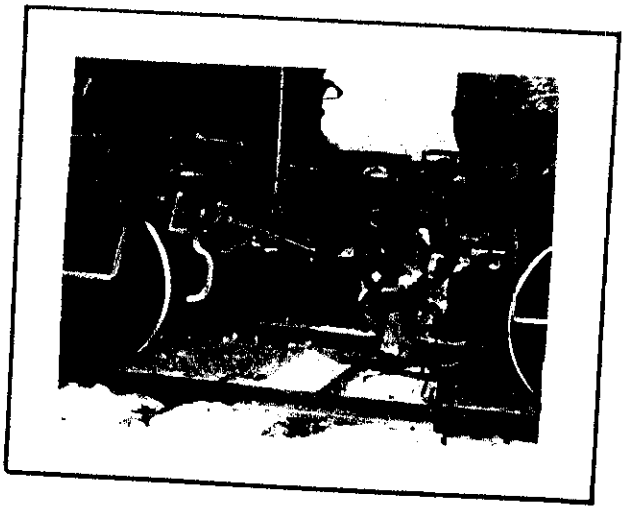
An auxiliary Military Police guard with field glasses views the storage area for fire and other hazards. These guards, stationed in 30 foot towers located at intervals around the storage area, are supplemented by exterior patrols and guards who inspect all personnel and materiel approaching the area. Matches, inflammables and sparking items are held by guards while the personnel are in the storage area. Fire breaks and clearing projects protect the restricted locations against desert brush fires.

CAR INSPECTION - SWITCHING

INSPECTION A Rialto Ammunition Inspector examines a box car flooring and trucks for evidences of leaking freight, tampering, and sabotage. All incoming cars are thoroughly inspected before being moved to the storage area.

SWITCHING A diesel engine, the only type of railroad prime mover permitted by Fort security regulations in ammunition storage and handling areas, switches three loaded explosives cars. The use of a "buffer" car, between the engine and ammunition cars, reduces fire and other hazards. As a further security measure, a pressure pump, hose, and water tanks are installed on the buffer car.

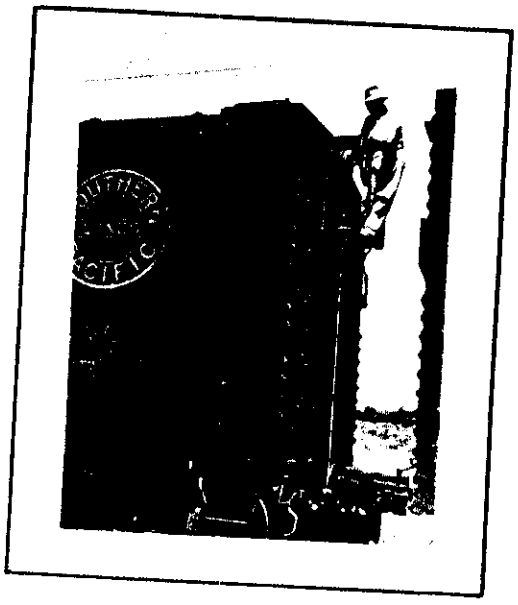


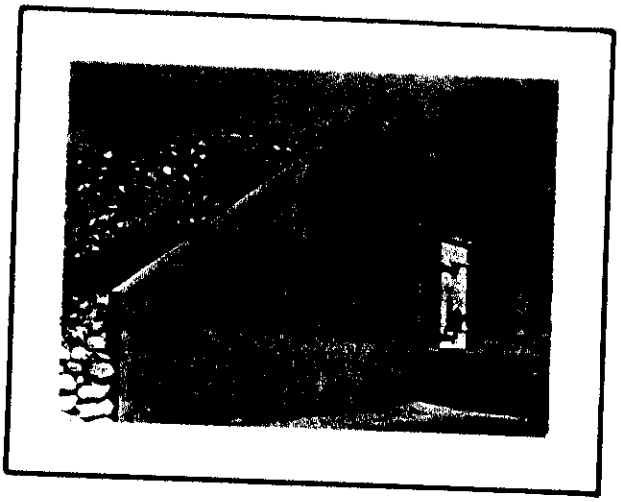


MOVING CARS - DEAD STORAGE

MOVING CARS A brakeman couples the airhoses between two cars; one phase of the requirement that cars in the ammunition storage area be under complete mechanical control when moved. After coupling the airhoses the pressure is checked and the automatic air brakes tested.

DEAD STORAGE The hand brake of an ammunition car is set to prevent accidental movement while in storage. All hand brakes are set firmly in addition to the automatic air brakes. When necessary, derail switches are placed on the tracks.





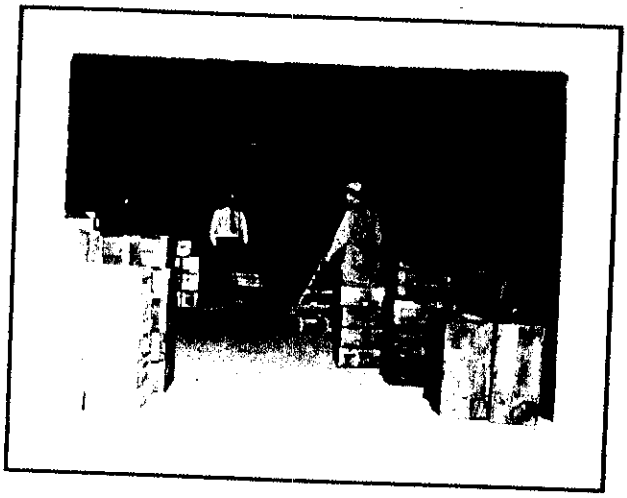
IGLOOS

The upper photograph shows the massive concrete and earth construction of igloos to protect the store explosives from external hazards. If an igloo explodes, the blast is concentrated upward and away from the hazardous area.

In the lower picture the heavy steel door, being opened by an ammunition inspector, allows adequate air circulation but prevents unauthorized entry and reduces other explosive dangers.

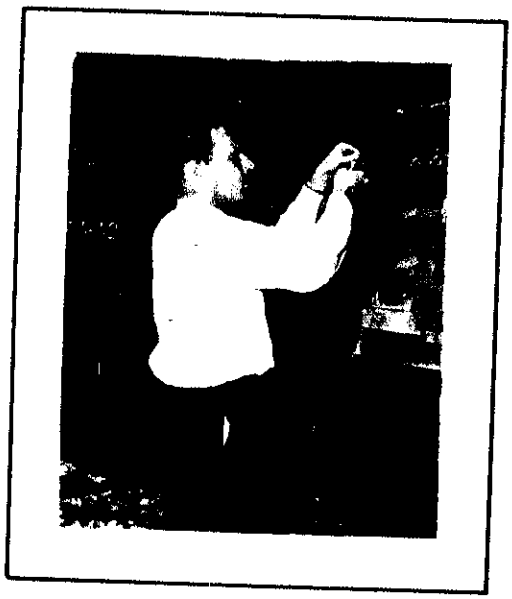
IGLOO STORAGE

Warehousemen handling ammunition in igloos use rubber-tired hand trucks and special soled shoes to reduce sparking hazards. The photograph shows a Port officer and a Rialto ammunition inspector restacking cases of ammunition on clean dry dunnage in order to examine an older shipment.



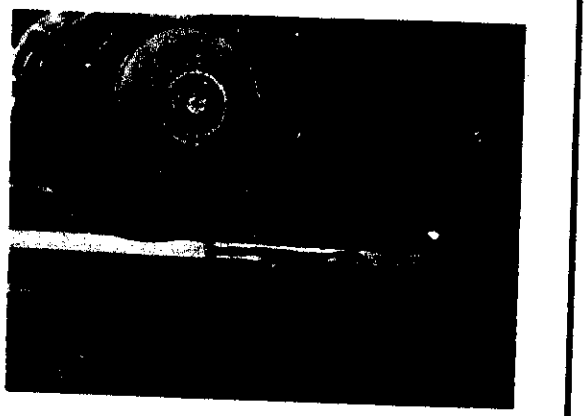
CAR SEALS

An ammunition inspector affixes a Rialto storage seal to the door of an explosive car after interior inspection. Before the car is moved from the storage area to Victory Pier, it is again inspected, and numbered car seals placed on the doors. Use of these seals provides further security against sabotage, tampering, and pilfering. Information of car numbers, seal numbers, expected and actual times of departure from Rialto is forwarded by the most expeditious means to the Port Transportation Division: Ammunition Inspection Section, Ordnance Office and/or Chemical office.



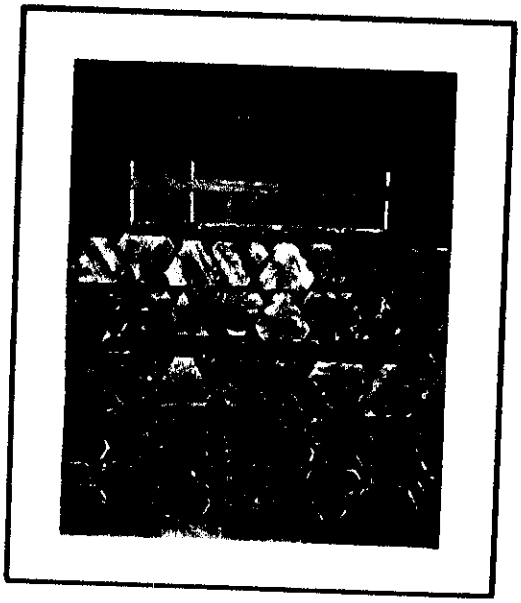
OPENING AN AMMUNITION CAR

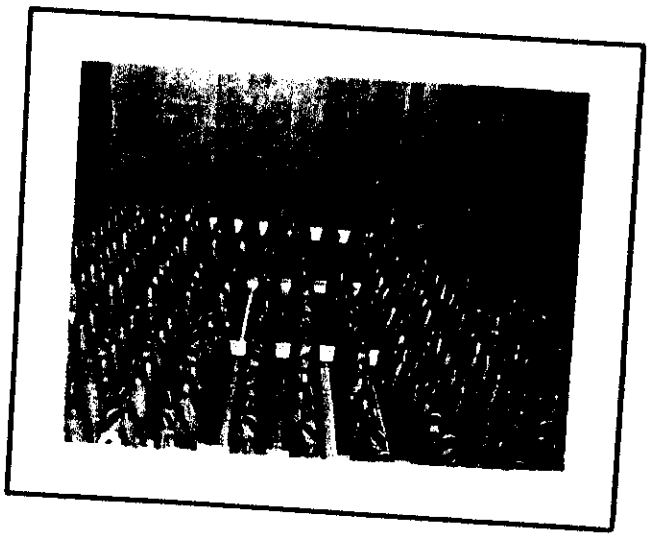
An ammunition inspector is breaking a Rialto seal, preparatory to opening a freight car to load explosives into a vessel. After the car is opened, a thorough inspection is made of the car and dunnaging before unloading is begun.



DUNNAGING FREIGHT CARS

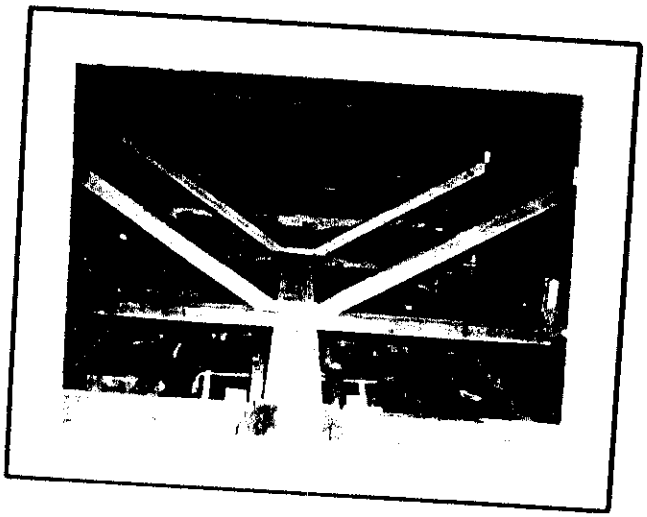
Explosives are tightly secured in freight cars to prevent movement and metal to metal contact during transit. These photographs illustrate methods used to dunnage several types of ammunition. In the top photograph, 1000 pound bombs are secured in heavy lumber cradles, and metal to metal contact prevented by two fiber rings around each bomb. The bottom photograph shows the method used in stacking 75 mm H.E. shells which are packed in boxes of three.





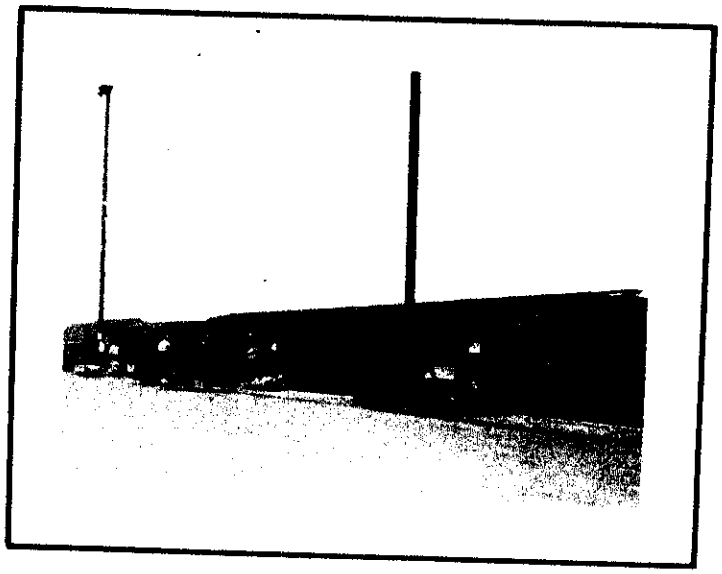
DUNNAGING FREIGHT CARS (CONT)

The heavier 155 mm. howitzer shells weighing approximately 100 pounds are stacked vertically on the floor of the freight car with dunnage placed between each row to prevent movement of the shells. In the lower photograph, use had been made of overhead braces to secure 2000 pound bombs.



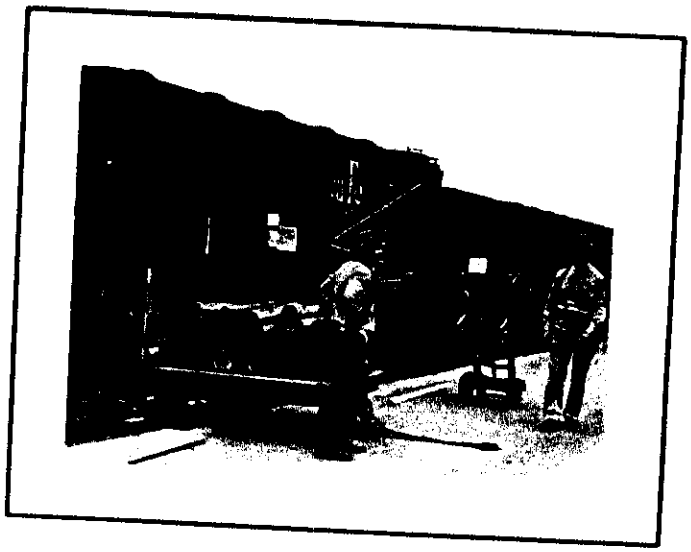
UNLOADING AMMUNITION

An ammunition train has been placed on the low line along the pier apron, and discharging begun from the cars. Fire symbols are properly placed on all of the cars, and car signs designating the class of freight are visible on the car doors. Freight is being worked from the four far cars, while a workman is removing dunnage from the nearest car. Before car unloading began, the pier was cleared of all debris, and cleaned to reduce the hazard of the loading operations.



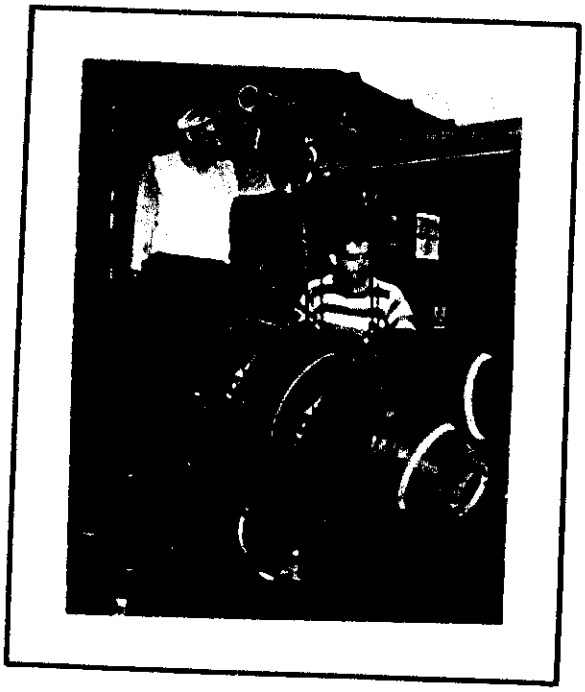
WORKING LIGHT ARTILLERY SHELLS

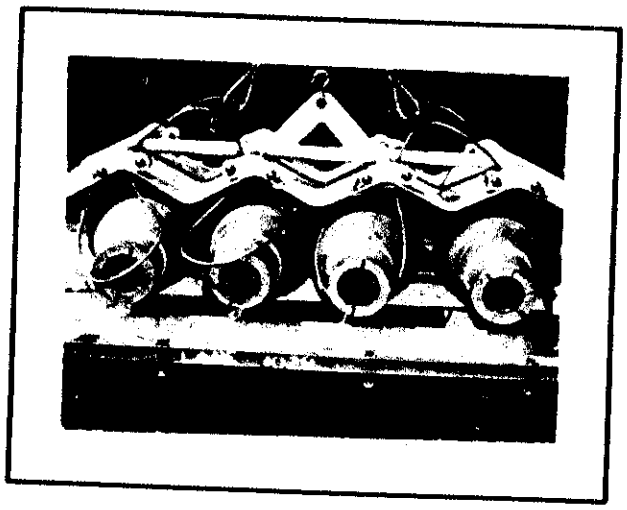
75 mm H.E. artillery shells, packed three to a case, and are loaded from the car to a trailer by hand, and then towed to the ship-side by a tractor. A longshoreman is waiting for a tractor, to hook up to the loaded trailer, while a patrolling MP, armed with a Thompson 45 sub-machine gun, guards and checks the area.



UNLOADING BOMBS

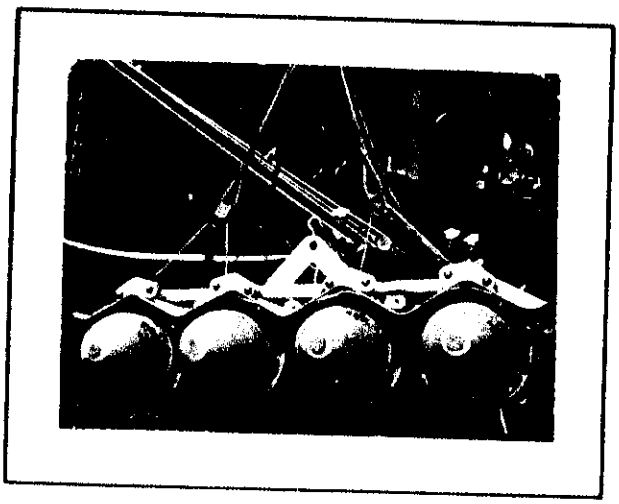
Two longshoremen have just secured tractor boom slings to two 1000 pound bombs, which are being lifted out of a freight car. The bombs then will be placed on a trailer for transportation to the shipside. The dunnage is removed from the car as the bombs are separately freed to be unloaded. To minimize the explosive hazard, the longshoremen use no hooks in this operation, and wear non-sparking soled shoes.





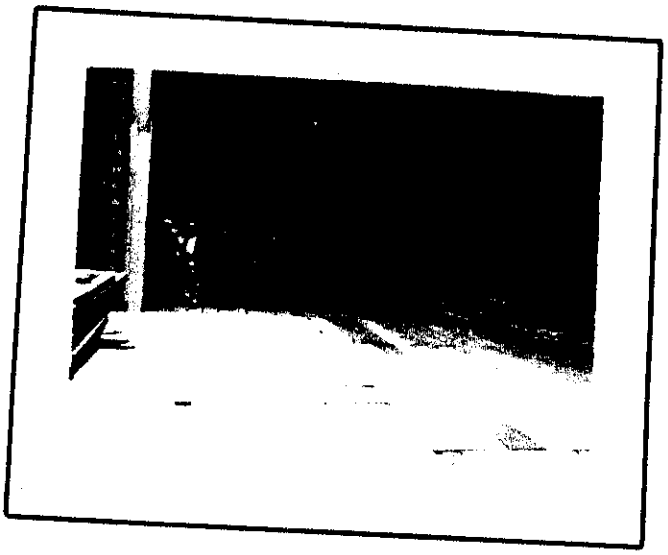
BOMB SLINGS

In the photograph above a Hardy bomb sling is being placed on four 500 pounds bombs, which will then be swung aboard the vessel. Metal to metal contact, except for the wire rope, is prevented between bombs and the sling by the fiber rings on each bombs. The manner of placing the wire slings is illustrated by the lower picture; the two slings on the left are in position to be slipped around the bomb tail, the one on the right is in position. The rubber tired wheels on trailers handling ammunition to reduce the sparking hazards are shown in this picture. The picture below shows the bombs suspended by the sling being swung aboard the vessel. The pull of the cargo lines firmly tightens the slings around the individual bombs. In the background, lashed to the gunwale with light line, is a firehose, connected to a pressure pump, with the fire-valve "cracked open" to permit a slight continuous flow of water.



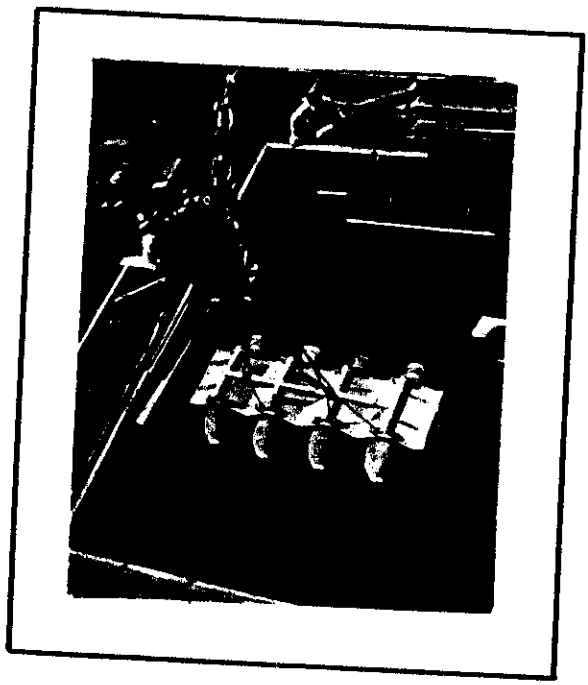
DUNNAGING VESSELS

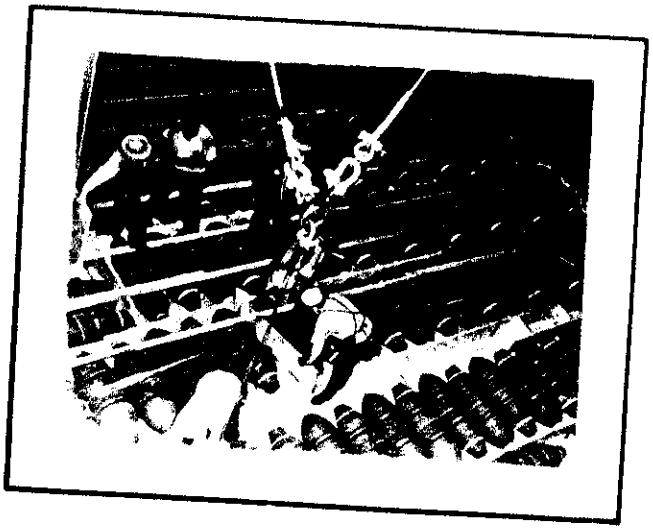
Safety regulations for ships loading ammunition require that the holds are thoroughly cleaned, and that the vessel is redunnaged. In the upper photograph, carpenters are tearing out the dirty dunnage used in the previous voyage, and then sweeping the hold to remove all dust, metal, and other items. Once a hold is loaded, such space usually is inaccessible, and great care must be used to remove all explosive and sparking hazards. When dunnaging is completed, all metal parts of the ship will be sheathed by dunnage from contact with the explosive cargo. The lower picture shows a hold completely cleaned, dunnaged, and prepared for the loading of ammunition. As ammunition is loaded, the ladder in the upper left will be sheathed, and the explosives secured in place by the stack of lumber visible at the left of the picture.



LOADING 500 POUND BOMBS

Four 500 pound bombs are being lowered into a lower hold by a Hardy bomb sling, developed at LAPE. Extreme care is required during loading operations to insure that bombs are lowered into place without jarring. The West Coast method of winch operation is illustrated by the winchman, who operates both winches by means of wooden lever extensions.

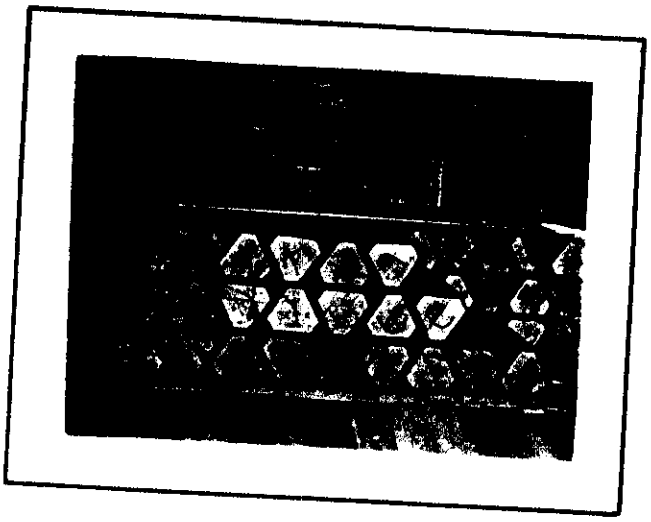


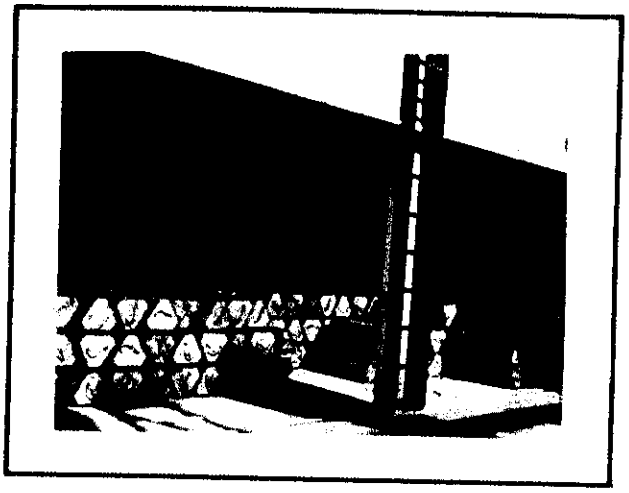


STOWAGE OF AMMUNITION

A stevedore is freeing a bomb from the sling preparatory to stowing it in the hold. Two carpenters, in the lower center, are dunnaging a row of bombs, while others are preparing to lay dunnage over the completed tier of bombs preparatory to beginning the next tier.

In the lower picture, cased 75 mm HE artillery shells are being stowed in a 'tween decks hold. The cases stacked in the dunnaged hold have only wood to wood contact. Flooring is laid over cases stacked three high before the ammunition is again tiered up.

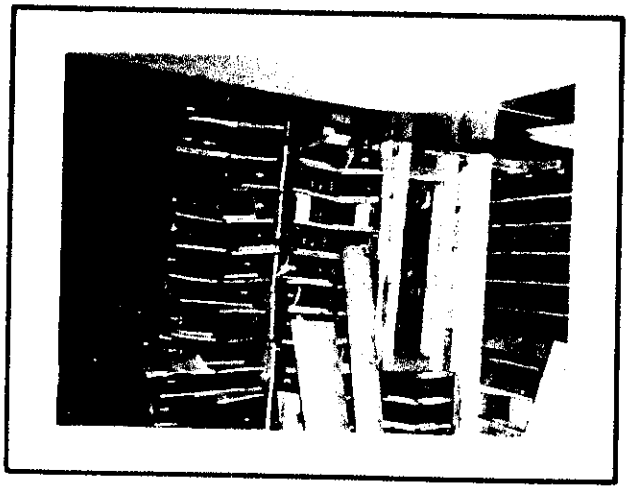




'TWEEN DECK STOWAGE

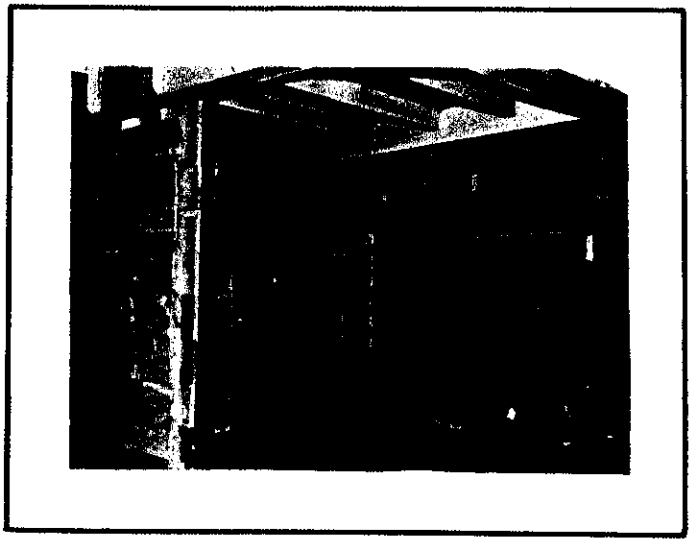
The above picture illustrates a method of 'tween deck stowage of 75 mm packed in triangular boxes containing 3 shells.

The larger 155 mm shells shown in the bottom picture require the construction of shelves of dunnage material. Rope is used to snub the shells together to prevent rolling.



SEGREGATED STOWAGE OF EXPLOSIVE CARGO

Ammunition is loaded on vessels according to stowage plans, which are carefully designed to give the segregation of explosives required by Coast Guard and Army Regulations. The segregation of explosive, inflammable, and dangerous cargo is based upon the type and sensitivity of the cargo being laden. Here a magazine has been constructed in a 'tween deck hold for bomb fuses. It is necessary to store this type of sensitive cargo certain distances from the skin of the ship. Other cargo susceptible to temperatures (such as phosgene, a gas having a low boiling point) must be loaded in compartments remote from heated areas of the vessel.



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SPHP/A

MEMORANDUM NO. 125)
)
SECTION CA)

1 January 1945

STANDING OPERATING PROCEDURE FOR THE SAFE HANDLING AND CONTROL OF EXPLOSIVES. AMMUNITION (OTHER THAN SMALL ARMS WITHOUT EXPLOSIVE PROJECTILES); AND CHEMICAL WARFARE TOXIC AGENTS.

RESCISSIONS:

Memorandum No. 26 R, 18 September 1944, subject: "SOP for Safe Handling and Control of Explosives, Ammunition (Other Than Small Arms Without Explosive Projectives), and Chemical Warfare Toxic Agents" is rescinded and the following substituted therefor.

INDEX

1. Synopsis

Outlines essential planning and procedures pertaining to release, movement, receipt, inspection, storage, assembling, handling, loading, stowage, shipment, surveillance, and maintenance of ammunition, chemical ammunition, ammunition components and explosives (hereinafter referred to as "ammunition")in such a manner as to create the minimum hazard to life and property.

2. Objectives

a. To establish regulations for movement of ammunition to the Port.

b. To establish responsibility of various Port agencies with respect to safety precautions and special handling of ammunition at Rialto Ammunition Back-up Storage Point, Rialto, California, (hereinafter referred to as "Rialto") en route to Port, and at the Port.

c. To establish maximum number of rail cars of ammunition to be permitted in the LAPE area at one time.

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d. To establish regulations governing the tenure of ammunition in the LAPE area.

e. To confine loading of ammunition to only designated piers.

f. To establish procedure for preparation of ammunition stowage plans and consist, and distribution thereof.

g. To establish procedure of planning for, and loading ammunition on vessels.

h. To prohibit mixed cargo of ammunition and toxic chemical agents.

i. To establish method of effecting waiver of Coast Guard regulations.

j. To establish emergency tug assistance during presence of ammunition laden vessels in the LAPE area.

k. To establish procedure for evacuation of vessels and rail cars in event of emergency.

l. To establish proper use of Port igloos.

m. To provide for staff supervision over operations at Rialto.

3. Release of Ammunition

a. Carload shipments of ammunition destined for LAPE, will be released from point of origin by the Port Transportation Division, upon joint concurrence of Ordnance Office, Water Division, and the Chemical Warfare Office when concerned.

b. Ammunition (except that from Navy Ammunition Back-up Storage Point at Fallbrook, California) will be routed thru Rialto, except in case of military necessity.

4. Operations at Rialto

a. Commanding Officer, Rialto, will:

(1) Segregate cars to conform with quantity - distance safety factors.

(2) Provide security protection.

(3) Open and inspect cars for condition of lading and evidence of sabotage. Recooper broken cases. Correct defective lading.

(4) Notify Ordnance Office or Chemical Warfare Office respectively, of any overage, shortage, or damage of ammunition.

(5) Close car doors, and securely affix numbered seals before release to LAPE area.

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(6) Notify Port Transportation Division, Ammunition Inspection Section, Ordnance Office, and/or Chemical Office, as pertains, by the most expeditious means, of the car numbers, seal numbers and expected and actual time of departure of ammunition from Rialto.

b. Staff supervision of designated functions performed at Rialto will be exercised as follows:

(1) Port Ordnance Officer and Port Chemical Officer, as pertains, will exercise technical supervision over handling of ammunition and toxic agents.

(2) Port Transportation Officer will exercise technical supervision over operation of rail facilities and equipment.

(3) Director, Intelligence & Security Division will exercise technical supervision over maintenance of security.

c. Port Transportation Division will notify Intelligence & Security Division, Ammunition Inspection Section of Ordnance Office, Water Division, and Chemical Warfare Office when concerned, of expected and actual time of departure of ammunition from Rialto, and estimated and actual time of arrival at Pico Gate, Long Beach, at least 12 hours before actual arrival.

d. Ammunition Inspection Section of Ordnance Office, or Chemical Warfare Office, as pertains, will prepare and distribute to Ordnance or Chemical Ammunition Inspectors assigned to the inspection of cars at Pico Gate, complete list of car numbers and corresponding seal numbers of all arriving cars.

5. Inspection and Safety Regulations

a. Intelligence & Security Division will take necessary precautions to insure that no unauthorized persons enter the restricted area thru the Pico Gate via trains, trucks, or any other means.

b. Ammunition Inspectors will check car seals and car numbers against list referred to in par 4d above, before cars enter Pico Gate.

c. Ammunition Inspectors will order questionable or improperly sealed cars separated from the train and switched to "suspect track" between Victory Pier and Pier A, where such cars will be opened and inspected by Ammunition Inspectors for sabotage in accordance with TC Cir. No. 45-4, dated 15 June 1944, Subject: "Intelligence and Security, Ship and Dockside Facilities Protection."

d. Director of Transportation, thru Water Division and Port Transportation Division, will control car movement so that the maximum number of ammunition cars in Long Beach Harbor area, or in rail yards adjacent thereto, does not exceed fifty (50) cars at one time, in compliance with letter OCT, dated 11 January 1944, Subject: "Limitation of Number of Cars of Ammunition or Explosives to be Held at Piers or in Rail Yards Adjacent Thereto."

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Transportation Division will insure that ammunition cars are hauled from restricted area.

Water Division will insure arrival of ammunition in restricted area at the approximate arrival time at berth of the ship on which same is to be loaded.

6. Operations at Long Beach Harbor Area

Ammunition (except Task Force, and TAT ammunition) will be loaded at Victory Pier and vessels fully or partially laden with ammunition may not be moved within the greater harbor of Los Angeles and Long Beach except to proceed to sea or for berthering at Berths 1 thru 7 inclusive (Pier A), ~~or Berths 12, 18, 19, 27 or 28, Long Beach Harbor area, as presently authorized by the Captain of the Port, U.S. Coast Guard.~~ Exceptions to the above will be made only in the event of military necessity and upon approval of the Captain of the Port, concurred in by the Director of Transportation, and Director of Intelligence & Security Division.

Senior Pier Officer at berth concerned will be the direct representative of Port Commander and charged with responsibility of promptly complying with instructions issued by the Captain of the Port regarding safety precautions.

b. Port Transportation Division will:

(1) Accomplish switching, spotting, and removal of railroad cars on order of Pier Officer or other authorized person.

(2) Maintain Army diesel railroad engine for emergency handling of railroad cars.

(3) Assist in enforcement of 50 car limitation.

(4) Make arrangements with railroad concerned to handle cars of ammunition from Rialto to Victory Pier without delay en route.

(5) Handle LCL rail or truck shipments of ammunition and toxic gases in bulk arriving at LAPE, in conformity with disposition advice obtained from Ordnance Office or Chemical Warfare Office.

c. Fire or Disaster

(1) In the event of a fire or disaster involving ammunition, personnel of Intelligence & Security Division, Transportation Division, Ordnance Office, Chemical Warfare Office, and Port Surgeon Office, will be guided by SOP "In the Event of Disaster", LAPE, dated 27 November 1944. Captain of the Port and his personnel will be guided by COTP, LA, operational Plan "A".